



Technical Bulletin

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CHAOS 4.4/TOSS 1.4 Release Notes

Summary

The CHAOS 4.4/TOSS 1.4 release is a minor update of the CHAOS software stack, which is based on the Red Hat Enterprise Linux 5.5 release. This release consists of minor bug fixes and enhancements but does not contain any major updates of CHAOS/TOSS software components, such as Lustre or SLURM. Because most of the changes are due to Red Hat updates, special attention should be paid to Red Hat's Release Notes below.

Red Hat Release Notes

Red Hat's release notes for RHEL 5.5 can be viewed on the Red Hat Web site:

http://docs.redhat.com/docs/en-US/Red_Hat_Enterprise_Linux/5/html/5.5_Release_Notes

The more detailed RHEL 5.5 Technical Notes may be found at:

http://docs.redhat.com/docs/en-US/Red_Hat_Enterprise_Linux/5/html/5.5_Technical_Notes/index.html

Highlights from Red Hat's release notes include:

- Support for AMD Magny-Cours processors.
- GDB updated to version 7.0.1 with enhanced C++ support and independent thread debugging. Please see the GDB section of the RHEL 5.5 Technical Notes for details.

CHAOS/TOSS Notes

- Important glibc update: Prevent the use of MAP_32BIT for pthread stack allocations.
In previous versions of CHAOS, pthread stacks were preferentially allocated below 2 GB in virtual address space. However, these thread stack allocations in 32-bit address space have been found to cause undesirable side effects when an application's heap grew enough to run into a pthread stack allocation. In this case, the glibc malloc(3) implementation assumed the presence of a "memory hole" and activated an alternate multi-heap scheme in which extreme memory fragmentation was possible. With some memory allocation patterns, this condition would cause boundless memory growth. After further study, it was found that the 2-GB boundary for pthread stacks is a historical artifact, so it was removed from the CHAOS 4.4 version of glibc. This change should not directly affect users, but it may expose application memory corruption bugs due to the change in memory layout.
- EDAC (Error Detection and Correction) support for Intel Nehalem and Westmere processors.
- Perfctr, a performance monitoring tool for accessing CPU and OS performance counters, updated to version 2.6.41.
- Support for QLogic Infinipath hardware and software.
- Addition of PLFS (Parallel Log Structured File System).

- New packages in /opt (available with ‘module load’).

Software	Version(s)
git	1.7
cuda toolkit	3.0, 3.1, 3.2
pycuda	0.94
octave	3.0.5
mvapich	1.2
openmpi	1.4.2, 1.5rc3

**If you have any questions, please contact the LC Hotline—
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